



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,954	08/10/2004	Ville Ruutu	59643.00477	8677

32294 7590 10/11/2006

SQUIRE, SANDERS & DEMPSEY L.L.P.  
14TH FLOOR  
8000 TOWERS CRESCENT  
TYSONS CORNER, VA 22182

EXAMINER

LE, HIEN

ART UNIT	PAPER NUMBER
----------	--------------

3662

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/501,954

Applicant(s)

RUUTU ET AL.

Examiner

Hien Le

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 07/21/2004 and 08/26/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference number not mentioned in the description: On **figure 2 step 4**, reference number **4** is not mentioned in the description. A proposed drawing correction, corrected drawing, or amendment to the specification to add the reference number in the description is required in reply to the present Office Action.
2. Applicant is **REQUIRED** to submit a proposed drawing correction or corrected drawings or arguments therefore in reply to this Office Action. If a response to the present Office Action fails to include proper drawing corrections or corrected drawings or arguments therefore, the response can be held **NON-RESPONSIVE** and/or the application could be **ABANDONED** since the corrections to the drawings are no longer held in abeyance.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-17 are rejected under 35 U.S.C. 102(e) as being unpatentable by Yilin Zhao et al (U.S. Patent # 6,452,541).

Considering **claim 1**, Zhao et al. clearly disclose the limitations of a method providing information regarding the location of a mobile user equipment, comprising:

- Determining the likely location of the mobile user equipment relative to the station. "A network-assisted satellite positioning system based location 100 including generally a reference receiver at a surveyed location having an obstructed skyward view of satellite 120 in a constellation, and a server, or reference node" (**column 1, line 64, and column 2 line 1-2**).
- Determining an estimate of the delay between transmission of a signal from the station and reception of said signal. " The propagation delay between the base station 140 and the mobile receiver 104, however, is generally variable since the location of the mobile receiver relative to the base station changes as the mobile receiver moves about" (**column 2, line 44-48**).
- Signaling assistance data from the station to the mobile user equipment. " The reference receiver receives satellite signals, and the reference node generate assistance messages based on the received satellite signals in a format suitable for transmission over the network to one or more mobile receivers" (**column 2,line 10-13**).

- Accomplishing a more accurate location determination at the user equipment.

"In assisted satellite positioning schemes where an assistance message having GPS time is transmitted from the reference node to the mobile receiver via the network, there is a delay, referred to herein as a propagation delay, between the time the GPS time is applied to the assistance message and the time the assistance message is received at the mobile receiver" (**column 2, line 29-36**).

Considering **claims 2 and 3**, Zhao et al. successfully disclose limiting the transaction of estimated delay's information. "The propagation delay between the base station 140 and the mobile receiver 104, however, is generally variable since the location of the mobile receiver relative to the base station changes as the mobile receiver moves about" (**column 2, line 44-48**), and " $T_{SCH}$  is the time interval between subsequent synchronization bursts, or pilot signals,  $SCH_i$  and  $SCH_{i+1}$  transmitted from the base station (the station).  $T'_{SCH}$  is the time interval between the reception of sequential synchronization signals,  $CH_i$  and  $CH_{i+1}$ , at the mobile receiver (the mobile user equipment)" (**column 3, line 21-25**).

Considering **claim 4**, Zhao et al. disclose **claim 4** the limitation of the entities of the positioning system comprising at least one satellite. "A network-assisted satellite positioning system based location 100 including generally a reference receiver at a surveyed location having an obstructed skyward view of satellite 120 in a constellation, and a server, or reference node" (**column 1, line 64, and column 2 line 1-2**).

Considering **claim 5**, Zhao et al. clearly disclose the limitations of the positioning system comprising the global positioning system (GPS). "Known satellite positioning

Art Unit: 3662

systems include the Navigation System with Time and Range (NAVSTAR) Global Positioning System (GPS) in the United States of America” (**column 1, line 17-20**).

Considering **claims 6 -8**, Zhao et al. successfully disclose the limitations of using delay estimate to relate the timing of the positioning system. “ The total propagation delay is used in the handset to compensate for the time required to propagate the assistance message to the mobile receiver, for example the total propagation delay time may be added to the GPS time stamped onto the assistance message (assistance data signal)” (**column 4, line 19-24**), “ the reference receiver receives satellite signals, and the reference node generates assistance messages based on the received satellite signal (a certain signal from the communication) in a format suitable for transmission over the network to one or more mobile receiver” (**column 2, line 10-13**), and “ In assisted satellite positioning schemes where an assistance message having GPS time is transmitted from the reference node to the mobile receiver via the net work , there is a delay ( included in assistance data), referred to herein as a propagation delay, between the time the GPS time is applied to the assistance message and the time the assistance message is received at the mobile receiver” (**column 2, line 29-36**).

Considering **claims 9 and 10**, Zhao et al. clearly disclose the limitations of the likely location of the user equipment being estimated based on information about a weighted mass centre.” In Global System for Mobile (Serving mobile location centre) communication networks and other networks (information about the mass center of the coverage area of the cell), the RTD is known as timing advance (TA)” (**column 2, line 53-55**), and “ In cellular network communications, network that provide location

assistance, the base station 330 may have associated there with a GPS receiver, for example a GPS receiver 342 which is part of a location measurement unit (LMU) 340 used to provide measurement for location services ( weighted mass center of the coverage area of the cell)" (**column 5, line 5-8**).

Considering **claim 11**, Zhao et successfully disclose the limitations of average timing advance or round trip time (RTT) used in estimation. " Many cellular communication networks periodically determine a round trip delay (RTD) between the base and a mobile station for hand-offs or time slot synchronization, etc. In Global System for Mobile (GSM) communication networks and other networks, the RTD is know as timing advance (TA). In 3G W-CDMA based networks, RTD is known as round trip time (RTT)" (**column 2, line 49-55**).

Considering **claims 12-13**, Zhao et al. successfully discloses the limitations of likely location being determined based on information of the average location of the mobile user equipment and at least one signal strength measurement. " The reference node is generally coupled to several network base station directly or indirectly via other network nodes (average location of the mobile user equipment), only one which, base station140, is identified in FIG. 1" (**column 2, line 6-9**), and " The reference receiver receives satellite signals, and the reference node generates assistance messages based on the received satellite signals in a format suitable for transmission over the network to one or more mobile receivers (at least one signal strength measurement)"(**column 2, line 10-13**).

Considering **claim 14**, Zhao et al. clearly disclose the limitations of broadcasting in cell information regarding estimated delay in transmission of signals from the base station of the cell to mobile user equipment. " The assistant messages are generally modulated on a cellular carrier signal 101 (a cell), which is transmitted in a point-to-point mode (within a cell) mode to a particular handset104, or in a pint-to-multipoint, or broadcast, or mode to multiple mobile receivers" (**column 2, line 14-18**).

Considering **claim 15**, Zhao et al. also disclose the limitations of the estimated delay in transmission of the signal from the station to the mobile user equipment being the determined based on the information of at least one further condition regarding the radio propagation of signals transmitted from the station to the mobile user equipment. " FIG. 3 illustrates a mobile receiver 310 in the exemplary form of a cellular handset comprising an communications network interface 314, for example a transmitter/receiver (Tx /Rx), for communicating with a cellular communication network base station 330" (**column 4, line 28- 33**), and " An estimated variable propagation delay between the mobile receiver and the base station may be determined by substituting the estimated round trip delay (eRTD)" (**column 3, line 34-35**).

Considering **claim 16**, Zhao et al. again disclose the limitations of a system for determining the location of a mobile user equipment, comprising:

- A positioning system comprising entities arranged for transmission of information signals to the mobile user equipment. "FIG. 1 is a network-assisted satellite positioning system 100 including generally a reference receiver at a



surveyed location an obstructed skyward view of satellites 120 in a constellation, and a server, or reference node" (**column 1, line 66-67, and column 2, line 1-2**).

- A station of a communication system arranged for transmission of information signals to the mobile user equipment and location estimation means for provision of an estimate of the likely location of the mobile user equipment relative. "Satellite positioning system enabled mobile receivers 310 and cellular communication network base stations 330 synchronized with satellite positioning system clocks" (**abstract**).

- Processor means for provision of an estimate of the delay's transaction. "The mobile receiver also includes a processor 316 having memory associated therefore coupled to the satellite signal reception interface and a local clock" (**column 4, line 39-43**).

- Local determination means for determining the location of the mobile user equipment. "The propagation delay between the base station 140 and the mobile receiver 104, however, is generally variable since the location of the mobile receiver relative to the base station changes as the mobile receiver moves about" (**column 2, line 44-48**), and "The reference receiver receives satellite signals, and the reference node generates assistance messages based on the received satellite signals in a format suitable for transmission over the network to one or more mobile receivers" (**column 2, line 6-9**).

Considering **claim 17**, Zhao et al. clearly disclose the limitations of a mobile user equipment, comprising:

- A first receiver for receiving information signals from entities of a positioning system for use in location determination by the mobile user. " The mobile receiver 310 further comprises a satellite signal reception interface 312, for example a GPS measurement sensor, for receiving satellite signal 322 from satellite in an overhead constellation 320 " (**column 4, line 36-37**).
- A second receiver for receiving signals from a station of a communication system. " FIG. 3 illustrates a mobile receiver 310 in the exemplary form of a cellular handset comprising an communications network interface 314, for example a transmitter/ receiver (Tx /Rx), for communicating with a cellular communication network base station 330" (**column 4, line 28- 33**).
- Location determination means for determining the location of the mobile user equipment by computing the different time of signals. " An estimated variable propagation delay between the mobile receiver and the base station (a computed different time) may be determined by substituting the estimated round trip delay (eRTD) of equation (3) for RTD in equation (1)" (column 3, line 34-35), " the propagation delay determined according to equations (4) and (5) compensates for movement of the mobile receiver relative to the base station (location determination) during the interval between periodic RTD determinations" (**column 3, line 45-50**).

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Le whose telephone number is 571-270-1326. The examiner can normally be reached on M-F: 7:30am- 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on 571-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent Examiner



Hien Le

09/27/06



TERRELL L. MCKINNON  
SUPERVISORY PATENT EXAMINER